



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/801,722 | 03/17/2004 | Yoshiharu Kataoka | 00862.022377.1 | 1892 |

5514 7590 02/16/2006

FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK, NY 10112

| EXAMINER |
|----------|
|----------|

SMOOT, STEPHEN W

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2813

DATE MAILED: 02/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/801,722

Applicant(s)

KATAOKA, YOSHIHARU

Examiner

Stephen W. Smoot

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18, 19, 22, 26-30 and 33 is/are rejected.
- 7) ☒ Claim(s) 20, 21, 23-25, 31 and 32 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 09/946,486.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3-17-04; 1-31-06.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

This Office action is in response to applicant's election filed on 14 November 2005.

Election/Restrictions

1. Applicant's election with traverse of Group I, claims 18-28, in the reply filed on 14 November 2005 is acknowledged. The traversal is on the grounds that the search of both inventions would not be burdensome. This is not found persuasive because, as indicated in the restriction requirement mailed to the applicant on 11 October 2005, it was indicated that the two distinct inventions have acquired a separate status in the art as shown by their different classification.

However, upon reconsideration of this restriction requirement, it was found that claim 33 is a method claim that actually links the two inventions together. Since the two inventions are not mutually distinct, the restriction requirement is hereby withdrawn and claims 18-33 will be examined on the merits.

Specification

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

3. The disclosure is objected to because of the following informality:

Update the first sentence of the specification to indicate that 09/946,486 has issued as US 6,838,686.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 26 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 26 recites the limitation "each lot of the substrate" in line 2. There is insufficient antecedent basis for this limitation in claim 26.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 18-19, 22, 27-30, 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Mizutani (US 5,532,091).

Referring to Fig. 1 and column 5, line 56 to column 8, line 35, Mizutani discloses an exposure method for patterning layers formed on a wafer (W) that includes illuminating marks (42XA, 42YA) formed in a first layer (46), illuminating marks (42XB, 42YB) formed in a second layer (47), and illuminating marks (42XC, 42YC) formed in a third layer (48). A field image alignment (FIA) system is used to both illuminate the marks (42XA, 42XB, 42XC, 42YA, 42YB, 42YC) with a halogen lamp and to detect images (e.g. with a CCD camera) corresponding to the marks (also see column 4, line 56 to column 5, line 29). The FIA system includes an interference filter for removing photosensitive and infrared wavelength bands (i.e. the FIA system, by filtering these

wavelength bands, sets an illumination condition). These are all of the limitations set forth in claims 18-19, 22 of the applicant's invention.

Regarding claim 27, the disclosure of Mizutani anticipates the further limitations of this claim because the claim is open to an embodiment wherein the first illumination condition and the second illumination condition are the same (i.e. Mizutani uses the same interference filter for illuminating marks corresponding to each layer).

Regarding claim 28, the position of each mark is calculated based on the detected images as described in column 5, lines 5-25.

Regarding claims 29-30, Mizutani discloses an exposure apparatus for patterning layers on a wafer that includes a field image alignment (FIA) system for both illuminating marks corresponding to a plurality of layers with a halogen lamp and detecting images (e.g. with a CCD camera) corresponding to the marks as described in column 4, line 56 to column 5, line 29. The FIA system includes an interference filter for removing photosensitive and infrared wavelength bands (i.e. the FIA system, by filtering these wavelength bands, includes a setting system that sets an illumination condition of the detection system). These are all of the limitations set forth in claims 29-30 of the applicant's invention.

Regarding claim 33, the exposure apparatus of Mizutani can be used to pattern a layer on a substrate (for example, to pattern layer 48 as shown in Fig. 1).

Allowable Subject Matter

8. Claims 20-21, 23-25, 31-32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter:

- Claims 20-21 would be allowable because the prior art of record does not teach or suggest, in combination with the other claim limitations, an exposure method of exposing a substrate to a pattern that includes the step of illuminating a mark in each of a plurality of layers on a substrate, wherein the illuminating step includes setting an illumination condition based on a manual indication;
- Claims 23-25 would be allowable because the prior art of record does not teach or suggest, in combination with the other claim limitations, an exposure method of exposing a substrate to a pattern that includes the step of illuminating a mark in each of a plurality of layers on a substrate combined with the step of detecting an image of each illuminated mark, wherein the illuminating step includes setting an illumination condition based on the detected image; and
- Claims 29-30 would be allowable because the prior art of record does not teach or suggest, in combination with the other claim limitations, an exposure

apparatus for exposing a substrate to a pattern that includes a detection system and a setting system which sets an illumination condition of the detection system, wherein the setting system sets the illumination condition based on a manual indication.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen W. Smoot whose telephone number is 571-272-1698. The examiner can normally be reached on M-F (8:00 am to 4:30 pm).

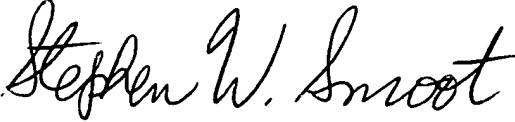
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr. can be reached on 571-272-1702. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Application/Control Number: 10/801,722
Art Unit: 2813

Page 8

SWS


STEPHEN W. SMOOT
PRIMARY EXAMINER